Lab 1

Research Methodology – Quantitative

This first R Lab contains a set of exercises about Case Study 1 (CS1: *Usability metrics for a sport watch*). The data set `DATASW.csv` contains the following variables:

Variable name	Description	Range
SubjID	Participant identification number	Numeric: 1,2,…,48
Gender	Gender of the participant	Textual: m=male, f=female
SuccTitj	Task success for Task *i* at time *j* (*i*=1,2,3; *j*=1,2)	Numeric: 0=failure, 1=success
TTitj	Time on task for Task *i* at time *j* (*i*=1,2,3; *j*=1,2)	Numeric, positive real value
Nsports	Number of sports practiced by the participant	Numeric: integer value
EU1	Easy of use item: "it is easy to use"	Numeric: integer value 0,1,..,7
EU2	Easy of use item: "it is user friendly"	Numeric: integer value 0,1,..,7
Sat1	Satisfaction item: "I am satisfied with it"	Numeric: integer value 0,1,..,7
Sat2	Satisfaction item: "I would recommend it to a friend"	Numeric: 0=no, 1=yes
Tot number: 20		

Table 1. Content of the data set `DATASW.csv`

Exercise 1.1 Load the data file `DATASW.csv` in the R package and assign it to a data frame called DATA.

Exercise 1.2 Use the `summary` function to describe the content of the time on task variables.

Exercise 1.3 Compute the proportion of successes in task 2 at time 1 for the female group and compare it with the corresponding one of the male group (here provide a basic comparison by simply showing the two computed proportions).

Exercise 1.4 Provide the summary statistics for the time on task variables by limiting the sample to the female group only.

Exercise 1.5 Repeat Ex. 1.4 this time considering the subgroup of participants composed by females who are practicing at least two different sports.

Exercise 1.6 Compute the average sum of successes across the three tasks for the male group (hint: use the `apply` function).

Exercise 1.7 Compute the average sum of successes across the three tasks for the male group with age greater than 30.

Exercise 1.8 Compute for each individual the sum of the two *easy of use* items.

Exercise 1.9 Verify (in a purely descriptive way – no statistical inference is required) if the average value of time on task for task 1 at time 1 is larger for unsuccessful results as compared to successful ones.

Exercise 1.10 Compute the average value of task time for task 3 at time 2 for the subgroup of individuals who **either** would recommend the sport watch to a friend **or** are very satisfied with it (level of satisfaction greater than 3).